

Pre-Calc Graphing Rational Review 2016

Key

State the critical information. Then graph. State domain.

$$1. f(x) = \frac{1}{-3x^2 + 12}$$

$$\frac{1}{-3(x^2 - 4)} = \frac{1}{-3(x+2)(x-2)}$$

BOBO $y = 0$

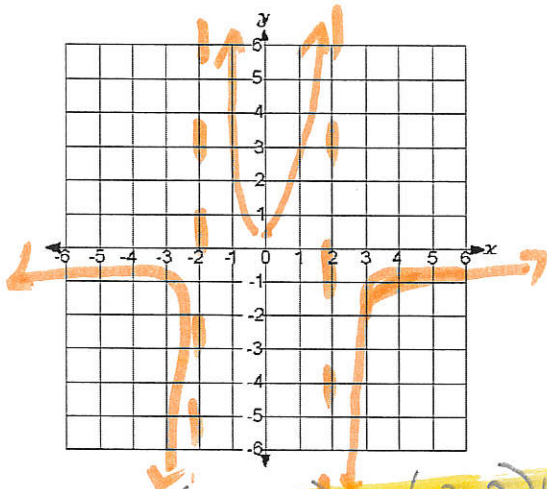
Hole non

VA $x = -2$ $x = 2$

HA $y = 0$

X int set $y = 0$ $0 = 1 =$ none

Y int set $x = 0$ $y = \frac{1}{12}$ $(0, \frac{1}{12})$



Domain: $(-\infty, -2) \cup (-2, 2) \cup (2, \infty)$

$(-\infty, -2) \cup (-2, 2) \cup (2, \infty)$

Test

$$x = -5$$

$$y = \frac{(-1)(-8)}{8}$$

$$2. f(x) = \frac{x^2 + x - 12}{-4x - 12}$$

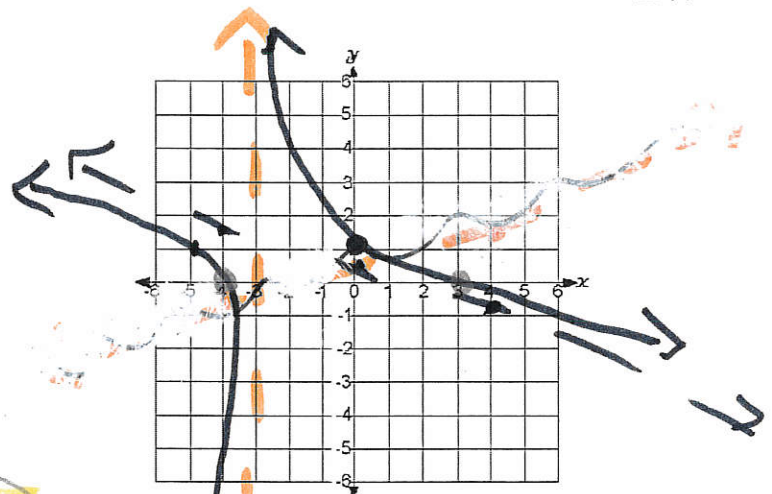
$$= \frac{(x+4)(x-3)}{-1(4x+12)}$$

$$= \frac{(x+4)(x-3)}{-4(x+3)}$$

hole \rightarrow none

VA $x = -3$
H.A. $-\frac{1}{4}x + \frac{1}{2}$

$$\begin{array}{r} -4x - 12 \overline{) x^2 + x - 12} \\ \underline{x^2 + 3x} \\ -2x \end{array}$$



Domain: $(-\infty, -3) \cup (3, \infty)$

$$x \text{ int: } (-4, 0)$$

$$(3, 0)$$

$$y \text{ int: } (0, 1)$$

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3. $f(x) = \frac{x^2 - 7x + 12}{x - 4}$

$f(x) = \frac{(x-4)(x-3)}{(x-4)}$

$y = x - 3$ Line with a hole!

Hole $(4, 1)$

VA _____

HA _____

X int $(3, 0)$

Y int $(0, -3)$

4. $f(x) = \frac{x^2 + x - 6}{-x^2 + 3x}$

$\frac{(x+3)(x-2)}{-x(x-3)}$

V.A. $x = +3$

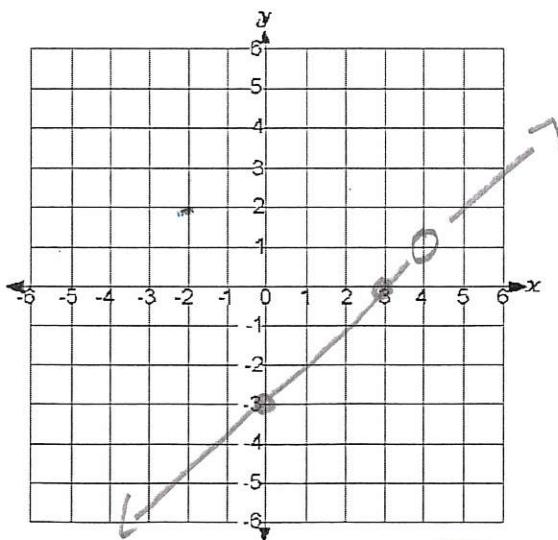
$x = 0$

HA. BOSCCO

$y = -1$

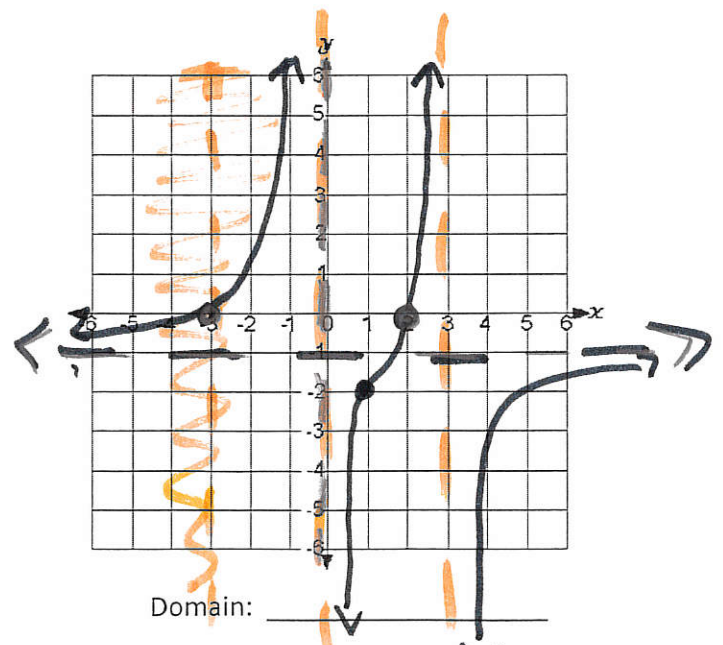
y int $(0, \text{none})$

x int $(-3, 0) (2, 0)$



Domain: _____

$(-\infty, 4) \cup (4, \infty)$



Domain: _____

Test $x = 1$

$y = \frac{4(-1)}{-1(-2)} = \frac{-4}{2} = -2$

Test $x = 2.5$
 $(5.5)(1.5) = 2.75$